ARJUNA JEE 2023

Atomic Structure

DPP-04

1. Energy of orbit
(1) Increases as we move away from nucleus
(2) Decreases as we move away from nucleus
(3) Remains same as we move away from nucleus
(4) None of these

2. Magnitude of K.E. in an orbit is equal to
(1) Half of the potential energy
(2) Twice of the potential energy
(3) One fourth of the potential energy
(4) None of these

3. The ratio of energies of first excited state of He^+ ion and ground state of H–atom is
(1) 1 : 1 (2) 4 : 1
(3) 1 : 4 (4) 16 : 1

4. The value of the energy for the first excited state of hydrogen atom will be
(1) –13.6eV (2) –3.40eV
(3) –1.51eV (4) –0.85eV

5. The energy of an excited H-atom is –1.51 eV. Angular momentum of e– in the given orbit will be
(1) 3h/π (2) 3h/2π
(3) 2h/π (4) h/π

6. The energy difference will be minimum of which of the following energy levels of H–atom?
(1) $n = 2$ and $n = 3$
(2) $n = 3$ and $n = 4$
(3) $n = 1$ and $n = 2$
(4) $n = 1$ and $n = 4$

7 Choose the incorrect relation on the basis of Bohr's theory
1) Velocity of electron $\propto \frac{1}{n}$
(2) Frequency of revolution $\propto \frac{1}{n^2}$
(3) Radius of orbit $\propto n^2$ Z
(4) Force on electron $\propto \frac{1}{n^4}$

8. The ratio of the difference in energy between the first and the second Bohr orbit to that between the second and the third Bohr orbit is
(1) $\frac{1}{2}$ (2) $\frac{1}{3}$
(3) $\frac{4}{9}$ (4) $\frac{27}{5}$

9. As the orbit number increases, the K.E. and P.E. for an electron:
(1) both increases
(2) both decreases
(3) K.E. increases but P.E. decreases
(4) P.E. increases but K.E. decreases

Answer Key

1. **(1)**
2. **(1)**
3. **(1)**
4. **(2)**
5. **(2)**
6. **(2)**
7 **(2, 3)**
8. **(4)**
9. **(4)**

